
Exercise Sheet 9

Submit until Wednesday, July 11 at 4:00pm

Exercise 1 (12 points)

Implement a class that parses a given GTFS feed for a given day of the week and produces the corresponding time-expanded graph with arrival, departure, and transfer nodes, as explained in the lecture.

As usual, consider the implementation advice given in the lecture and the code design suggestions linked from the Wiki. For this task in particular, following the right code design and the right order of steps can mean an order of magnitude in implementation time.

There should be a unit test for a simple, small GTFS feed.

Exercise 2 (6 points)

Use your class from Exercise 1 to produce the time-expanded graph for the GTFS feed for Manhattan, linked from the Wiki, for a *Wednesday*. Then run 1000 random queries (with a random source and target station, and a random departure time between 6am and 6pm at the source) on it using plain Dijkstra.

As usual, report your results in a row on the table linked from the Wiki. In particular, report the number of nodes, arcs, and stations in your graph, the average query time, and the average shortest path cost.

Exercise 3 (2 points)

As usual, commit your code to our SVN and check that everything works on Jenkins, and also commit a text file *feedback-exercise-sheet-9.txt* where you briefly describe your experiences with this exercise sheet and the corresponding lecture.